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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/784,112	02/16/2001	Hideya Takeo	Q61207	3865

7590 10/03/2003

SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037-3202

EXAMINER

AKHAVANNIK, HUSSEIN

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 10/03/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/784,112

Applicant(s)

TAKEO, HIDEYA

Examiner

Hussein Akhavannik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

On page 3, line 18, "CRT 300" is not illustrated in figure 3.

On page 17, line 12, "The mask size is 2 meters" appears to be a typo. The Applicant is respectfully invited to change the units of the mask size or explain why such a large mask is required.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al (U.S. Patent No. 5,224,036).

Referring to claim 1,

- i. Anomalous shadow detecting means for detecting a suspected anomalous shadow from image data descriptive of an inputted image according to a prescribed detection process is illustrated by Ito et al in figure 4 by the shadow extraction means (40c). Ito et al explain that judgement is made as to whether the extracted shadow is a tumor (anomalous) in column 8, lines 58-63.

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ii. Image output means for outputting information including at least information identifying the detected suspected anomalous shadow is illustrated by Ito et al in figure 4 by the display means (40h). Ito et al explain in column 11, lines 13-19 that the shadows of the malignant tumors are pointed out on the display, in company with the image signal. In order to be able to point out the anomalous shadows, the system of Ito et al calculates the coordinates of the shadows as explained in column 9, lines 22-31.

iii. The image output means outputting values of one or more standard parameters concerning the suspected anomalous shadow together with the information including at least the information identifying the suspected anomalous shadow is explained by Ito et al in column 13, lines 13-22. The information identifying the suspected anomalous shadows (position data) is output on the display by Ito et al, corresponding to claim 1ii. Ito et al further explain displaying the probability that a suspected shadow is malignant so that a user can manually determine if a shadow is benign or malignant, corresponding to the one or more standard parameters concerning the suspected anomalous shadow.

Referring to claim 2, the image output means being either an image display means or printing means is explained by Ito et al in column 11, lines 13-19 as the CRT display.

Referring to claim 3, the image output means further outputting certainty of detection of the suspected anomalous shadow together with the information including the information identifying the suspected anomalous shadow is explained by Ito et al in column 13, lines 13-22. The characteristic value C_2 is explained to be the probability that a shadow is a shadow of a malignant tumor, which corresponds to the certainty of detection of the suspected anomalous

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shadow. This information is displayed in conjunction with the information identifying the suspected anomalous shadow, corresponding to claim 1ii.

Referring to claim 4, this claim corresponds to claim 2.

Referring to claim 5, one or more standard parameters including at least one of calcification density, image density concentration of the suspected anomalous shadow, an output value of an iris filter, and malignancy/benignancy of the suspected anomalous shadow is explained by Ito et al in column 13, lines 13-22. The standard parameter is explained to be the probability that a shadow is a shadow of a malignant tumor, which corresponds to the malignancy/benignancy of a suspected anomalous shadow.

Referring to claim 6, this claim corresponds to claim 2.

Referring to claim 7,

- i. One or more standard parameters including at least one of calcification density, image density concentration of the suspected anomalous shadow, an output value of an iris filter, and malignancy/benignancy of the suspected anomalous shadow corresponds to claim 5.
- ii. The image output means further outputting certainty of detection of the suspected anomalous shadow together with the information including the information identifying the suspected anomalous shadow corresponds to claim 3.

Referring to claim 8, this claim corresponds to claim 2.

Referring to claim 9, each of the one or more standard parameters is a parameter used for distinguishing the suspected anomalous shadow from a normal shadow is explained by Ito et al in column 13, lines 13-22. The standard parameter (C_2) used by Ito et al is the probability that a

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shadow is a shadow of a malignant tumor. The higher the probability that the shadow is malignant, then the lower the probability that it is benign (and therefore normal). Therefore, the probability value output by Ito et al does distinguish an anomalous shadow from a normal shadow.

Referring to claim 10, this claim corresponds to claim 2.

Referring to claim 11,

- i. Each of the one or more standard parameters is a parameter used for distinguishing the suspected anomalous shadow from a normal shadow corresponds to claim 9.
- ii. One or more standard parameters including at least one of calcification density, image density concentration of the suspected anomalous shadow, an output value of an iris filter, and malignancy/benignancy of the suspected anomalous shadow corresponds to claim 5.

Referring to claim 12, this claim corresponds to claim 2.

Referring to claim 13,

- i. Each of the one or more standard parameters is a parameter used for distinguishing the suspected anomalous shadow from a normal shadow corresponds to claim 9.
- ii. One or more standard parameters including at least one of calcification density, image density concentration of the suspected anomalous shadow, an output value of an iris filter, and malignancy/benignancy of the suspected anomalous shadow corresponds to claim 5.

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iii. The image output means further outputting certainty of detection of the suspected anomalous shadow together with the information including the information identifying the suspected anomalous shadow corresponds to claim 3.

Referring to claim 14, this claim corresponds to claim 2.

Referring to claim 15,

i. An anomalous shadow detecting means for detecting a suspected anomalous shadow from image data descriptive of an inputted image according to a prescribed detection process corresponds to claim 1i.

ii. An image output means for outputting information including at least information identifying the detected suspected anomalous shadow corresponds to claim 1ii.

iii. The image output means further outputting certainty of detection of the suspected anomalous shadow together with the information including the information identifying the suspected anomalous shadow corresponds to claim 3.

Referring to claim 16, this claim corresponds to claim 2.

Referring to claim 17, the information identifying the suspected anomalous shadow is either of an image of the suspected anomalous shadow or numerical data descriptive of a position, morphology or size of the suspected anomalous shadow is explained by Ito et al in column 11, lines 13-19. Ito et al explain reproducing a visible image of the malignant (anomalous) shadows on a display, corresponding to an image of the suspected anomalous shadow.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takeo et al (U.S. Patent No. 5,732,121) – To exhibit detecting anomalous shadows in radiographic images using an iris filter as illustrated in figure 5 and explained in the abstract.

Takeo et al (U.S. Patent No. 5,714,764) – To exhibit thresholding a radiographic image to determine anomalous shadows as explained in the abstract.

Roehrig et al (U.S. Patent No. 5,815,591) – To exhibit displaying anomalous shadows extracted from a radiographic image using red and black circles as explained in column 8, lines 7-19.

Rogers et al (U.S. Patent No. 6,556,699) – To exhibit thresholding measurements of detected shadows to determine whether the shadows are malignant or benign as explained in column 12, line 10 to column 14, line 41.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hussein Akhavannik whose telephone number is (703)306-4049. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H. Boudreau can be reached on (703)305-4706. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

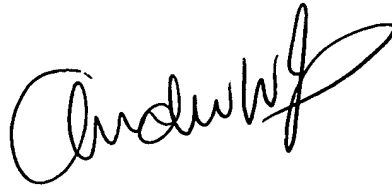
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

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Hussein Akhavannik
September 24, 2003

H.A.

A handwritten signature in black ink, appearing to read "Andrew W. Johns". The signature is fluid and cursive, with a large initial "A" and a long, sweeping underline.

ANDREW W. JOHNS
PRIMARY EXAMINER